R_2 :

$$d(I,P) = \frac{|P_I|}{\|\vec{n}_P\|} \quad \text{avec } P_I = 1+2-1-5 = \boxed{-3}$$

et $\vec{n}_P \begin{pmatrix} 1 \\ 1 \\ -1 \end{pmatrix}$

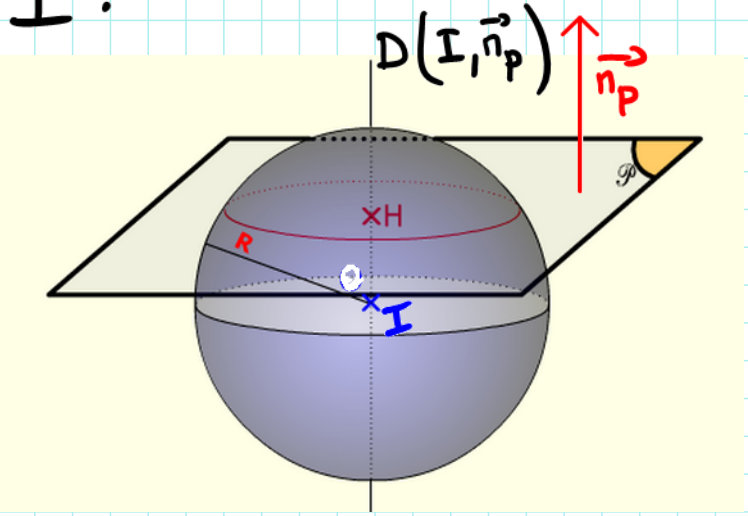
Ainsi $d(I,P) = \frac{|-3|}{\sqrt{1^2+1^2+1^2}} = \boxed{\sqrt{3}} < \sqrt{5}$

Donc $P \cap S$ est un cercle $\mathcal{C}$ de rayon :

$$r = \sqrt{R^2 - d^2} = \sqrt{5-3} = \boxed{\sqrt{2}}$$

et de centre $H(x,y,z)$, le projeté orthogonal de I Sur P.

Donc $\boxed{H \in P \cap D(I, \vec{n}_P)}$



$$\Rightarrow \begin{cases} x+y-z-5=0 \\ x = 1+\alpha \\ y = 2+\alpha \\ z = 1-\alpha \end{cases}$$

$$\Rightarrow 1+\alpha+2+\alpha-1+\alpha-5 = 0$$

$$\Rightarrow 3\alpha = 3 \Leftrightarrow \boxed{\alpha = 1} \Rightarrow \begin{cases} x=2 \\ y=3 \\ z=0 \end{cases} \Rightarrow \boxed{H(2,3,0)}$$